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Fitchburg teacher finds success with 'flipped' classroom



MEMBER FEATURE EXCHANGE ADVANCE FOR SUNDAY, APRIL 5 -- In this March 4, 2015 photo, Memorial Middle School seventh and eighth grade science teacher Christopher Landry, background, is teaching 8th graders using the flipping the classroom model. Kiara Wilbur, 14, standing and Michelle Lozada, 13, listen to Jayda Kolaco, 14, as she explains the evolution of a species as they work together during class. (AP Photo/Sentinel & Enterprise, John Love) (The Associated Press)

The Associated Press

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FITCHBURG, Mass. (AP) - Memorial Middle School science teacher Christopher Landry spends most of his time crouching down like a catcher, talking to his students one-on-one, instead of standing in front of the board.

For the past four years, Landry, 40, has incorporated the educational model called "flipping the classroom," in which lectures are delivered electronically outside of the class and "homework" is done during class.

Supporters say the method is growing in popularity, but Landry is the only one who uses it in his school.

"It's the idea that the classroom centers on the students," said Landry, who also uses elements of collaborative learning.

He said lectures are boring for students, as well as for teachers, and students learn better through discovery and hands-on work with the instructor available to help them when they get stuck.

Proponents say the approach changes the teacher from a "sage on the stage" to a "guide on the side" and gives students a deeper understanding of the subject matter, but the technique requires more work.

On a recent morning Landry's eighth-grade biology class examined similarities in amino acid configurations to trace evolutionary relationships between horses, donkeys, rabbits, snakes, turtles and whales. If that sounds advanced for a middle-school classroom, that's because it is.

Landry said he frequently introduces his students to advanced concepts to prepare them for high school and beyond.

Technology is a big part of how Landry teaches, and instead of doing roll call each class, he has his students run a personal QR Code over a scanner. He maintains an online resource for his class, and students are required to watch online videos and listen to specific podcasts before class.

The actual classroom time sees students divided into teams of four and given assignments to carry out. Students are also equipped with plastic discs that are green on one side and red on the other. When students get stuck, they place the red side up on their table so Landry will come help them.

"I never give them the answer. I always ask them questions so they can find the answer," said Landry.

J. Wesley Baker, a communications professor at Cedarville University in Ohio, is one of the early proponents of the flipped classroom approach and helped popularize the name. He said the approach allows the instructor to interact with students during the most important time of the teaching process: When they are working on problems.

"They'll hit a roadblock and won't be able to understand it," said Baker.

He said lecturing reduces the role of the instructor to transferring information to students, often in a mindless, unengaging way that doesn't stick very well. It's like they're reading a textbook out loud.

The urban legend website Snopes.com has an entry about a tale published in 1963 in which a college professor started delivering lectures by leaving a tape recorder on his podium and leaving the room. He supposedly went back early one day to find the students had all left but placed tape recorders on their desks to record the lecture.

Baker found himself in a similar situation in the early 1990s. He was delivering lectures for class that consisted of him reading slides to his class as he worked to develop a class that

could be taught remotely. Students were writing down what the slides read verbatim.

"I thought, 'This is really stupid,'" said Baker. "Information was traveling from the slides to their notes without passing through either of our brains." He finally gave his students the information from the slides, and he had walked halfway back to his office before he realized he had just given away all of his content and didn't know what he was going to do for the rest of the semester.

Baker ended up using classroom time to check that students understand the course information and had them work on assignments in the classroom. Someone else told them he was "flipping" the time and place of homework and class lectures and the name stuck.

Baker said there is no single model for flipping the classroom, only a set of guidelines. He said there is still a place for the instructor to lecture the class, just not as often.

However, Baker said the flipped classroom method requires more work. While many instructors use educational videos other people have created, such as the popular Khan Academy free video series, instructors have to be prepared for whatever issues and questions students have. He said that's a lot harder to prepare for than a lecture that the instructor plans ahead of time and presents.

"You've got to be prepared that the class could go in several different directions depending on what the students' needs are," he said.

Baker added that it's important that students understand why the class is being taught in the new manner and that students don't get overburdened with too much work and information to absorb outside of the classroom.

Because of the unpredictable nature of flipped classrooms, early on instructors for some subjects resisted the approach, such as nursing instructors, he said. Nursing students are required to pass very specific standardized tests, and they were concerned that the flipped classroom wouldn't cover all of the material.

Baker said there can be some tradeoff that in-depth teaching doesn't cover every aspect of a subject because of time constraints, but he said in practice the flipped classroom can balance both depth and coverage of all material and has been shown to work in subjects like nursing.

Thomas Schoenfeld is a physics professor at Fitchburg State University. He tried the flipped classroom approach for one semester in 2012 but didn't stick with it. He taught four sessions of the same class, each about 65 students, and performed a small experiment.

He taught two of the classes the traditional way and two using the flipped method.

His results? Test scores for the different groups were no different, but Schoenfeld has a few caveats. He would give short quizzes to students at the beginning of classes to see how much they learned in class. He said flipped students did better on the first quiz, but the same on the second one.

"They knew more coming in, but they didn't necessarily benefit from the flip," he said. "But one way of interpreting that is I was never taking full advantage of the flip by pushing them in their exams to demonstrate their higher level of understanding." He said he also could have had students do more activities in class.

Schoenfeld also polled students to ask what they thought of the flipped approach. Slightly more than half, 55 percent, didn't like it and felt that they were having extra work heaped on them. The rest of the class liked it.

While that was the last time Schoenfeld tried the model, he's not against it. He said it would take a lot more work to really work.

"One of the reasons I haven't done it is that it would take a whole summer devoted to preparing the class," he said.

Kevin Grier, an economics professor at the University of Oklahoma, switched to using the flipped classroom approach for all of his undergraduate classes. He first learned about it from a presentation he saw online by Harvard physics professor Eric Mazur.

Grier has his students watch videos from Khan Academy, Marginal Revolution University and Jodi Beggs, all of which are free to the public and available on YouTube. His students also take online quizzes, and he grades them before class. The quizzes also contain an open-ended question, and he uses those quiz results to decide what will happen in class.

Grier also lets students ask him questions during class through a private electronic message. He said a lot more students are willing to ask questions this way.

"Students nowadays really do not want to raise their hand and draw attention to themselves," he said. By the same token, video lectures allow students to rewind without their peers knowing they are having trouble or worry about interrupting anyone.

Back in Fitchburg, Landry said he spends his summers trying to find ways to make his classes better. He started his career in Lowell a dozen years ago and came to Fitchburg eight years ago. It was four years ago he learned about the flipped classroom approach and has been using it ever since.

He said young people today watch Internet videos a lot and read less than past generations.

"Why fight them on it?" said Landry. He said it makes more sense to embrace their learning style.

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